



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/738,383	12/16/2003	Chickayya Naik	CISCP846	7259
26541	7590	04/26/2010	EXAMINER	
Cindy S. Kaplan P.O. BOX 2448 SARATOGA, CA 95070			NOORISTANY, SULAIMAN	
ART UNIT	PAPER NUMBER			
	2446			
MAIL DATE	DELIVERY MODE			
04/26/2010	PAPER			

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/738,383	<b>Applicant(s)</b> NAIK ET AL.
	<b>Examiner</b> SULAIMAN NOORISTANY	<b>Art Unit</b> 2446

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 12 February 2010.  
 2a) This action is FINAL.      2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 2,5,6,8,12-14,16,19,20,22,26-28 and 30-39 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 2,5,6,8,12-14,16,19,20,22,26-28 and 30-39 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 12/16/2003 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date \_\_\_\_\_
- 5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_

***Detailed Action***

This Office Action is response to the application (10/738383) filed on 2/12/2010

***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 7 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/18/08 has been entered.

***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 16, 19-20, 22, 26-28 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 16, 26-27 is directed to a computer readable medium "CRM" which is referring to transmission medium and carrier wave as described on the spec "pages 19." Thus the computer readable medium in claim 16 is limited to non-transition form based on a broadest reasonable interoperation, and is directed to signals per se, therefore, it not based on the following statutory categories: e.g., process, machine, etc.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

**Claims 2, 5-6, 8, 12-14, 16, 19-20, 22, 26-28, 30-39** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Haggerty U.S Patent No US 6331983** in view of **Regan U.S Patent No US 6578086**.

**Regarding claim 2**, Haggerty teaches wherein a method for operating a node in a layer 2 network to handle multicast traffic, said method comprising:

receiving at a switch within said layer 2 network, via a first port, an Internet Group Management Protocol (IGMP) join message for a multicast distribution group said IGMP join message received from a neighbor switch in said layer 2 network (**Figs. 10 - "When a switch receives an IGMP "join group" message from a local host on a receive port (step 230);**

establishing, multicast state information at the switch for said multicast distribution group based on said join message, If the state information has already been established (**the switch first checks if connections for that group exist in its connection table (step 231);**

adding said first port to a port list associated with said state information at the switch, said port list being used to select ports for forwarding received multicast traffic of

said multicast distribution group (the switch adds the receive port which the IGMP "join group" message was received from to the connection table (step 232) and if connections for that group do not exist, the switch determines if the multicast group is new to the switch (step 234))

forwarding said IGMP join message from the switch towards an attraction point of said layer 2 network via a spanning tree defined within said layer 2 network, wherein the attraction point is a layer 2 switch (Fig 11 "e.g., the multicast switch determines if there are any local host sources transmitting multicast packets to the group requested (step 243). If the switch determines that it has local sources transmitting packets to the requested group, the switch sends a directed "sender present" message (step 245) directly to the switch that sent the "switch join group" announcement message." Fig. 11 "In an alternative embodiment, steps 241 and 242 may be omitted for a case in which multicast switches in a switch network have no attached routers "here is same as attraction point is a layer 2 switch" – col. 29, lines 30-33);

receiving at the switch, multicast traffic addressed to said multicast distribution group and transmitted from the attraction point (FIG. 12 shows the processing steps a multicast switch performs when that switch's IGMP detects no local receiving hosts for a multicast group on an output port connected to a local host link (step 250) -- e.g., Deliver--sends a message one hop to neighbor switches – col. 17, lines 57-58); and

forwarding said multicast traffic via a multicast distribution tree formed based on said spanning tree (e.g., **Announce--sends to all switches, either on the 802.1d spanning tree or by flood – col. 17, line 59-60**).

However, Haggerty is silent in terms of "state information" Regan teaches that it is well known to have a system to utilize state information (**Fig. 2, units 210, 212 "port state information"**) in order to make the system more efficient and utilize by network device to maintain the port state information for I/O ports of network device (col. 5, lines 58-60).

Thus, it would have been obvious to one ordinary skill in the art to modify Haggerty's invention by utilizing network device to maintain the port state information for I/O ports of network device. More specifically, a method and apparatus for dynamically managing the topology of a data network that is unencumbered by the inherent deficiencies and limitations commonly associated with the spanning tree protocol and other prior art solutions, as taught by Regan.

**Regarding claim 5**, Haggerty and Regan together taught the method as in claim 2 above. Haggerty further teaches wherein flooding said join message via a spanning tree of said layer 2 network (e.g., **Announce--sends to all switches, either on the 802.1d spanning tree or by flood – col. 17, line 59-60**).

**Regarding claim 6**, Haggerty and Regan together taught the method as in claim 2 above. Haggerty further teaches wherein forwarding said join message via one or more

ports via which an attraction point advertisement message was previously received  
**(Fig. 10, step 231-234 - e.g., Deliver--sends a message one hop to neighbor switches – col. 17, lines 57-58).**

**Regarding claim 8,** Haggerty and Regan together taught the method as in claim 2 above. Haggerty further teaches wherein forwarding said join message via one or more ports via which an attraction point advertisement message was previously received  
**(Fig. 10, step 231-234 - e.g., Deliver--sends a message one hop to neighbor switches – col. 17, lines 57-58).**

**Claim 12-14, 16, 19-20, 22, 26-27, 30-36** list all the same elements of **claim 2, 5-6, 8,** but in computer readable medium, apparatus rather than method form. Therefore, the supporting rationale of the rejection to **claim 2, 5-6, 8** applies equally as well to **claim 12-14, 16, 19-20, 22, 26-27, 30-36.**

**Regarding claim 37,** Haggerty and Regan together taught the method as in claim 2 above. Haggerty further teaches wherein said IGMP join messages are forwarded from the switch towards the attraction point without the use of layer 3 routers (**Fig 11 “e.g., the multicast switch determines if there are any local host sources transmitting multicast packets to the group requested (step 243). If the switch determines that it has local sources transmitting packets to the requested group, the switch sends a directed "sender present" message (step 245) directly to the switch that**

**sent the "switch join group" announcement message." Fig. 11 "In an alternative embodiment, steps 241 and 242 may be omitted for a case in which multicast switches in a switch network have no attached routers)**

**Regarding claim 38,** Haggerty and Regan together taught the method as in claim 16 above. Haggerty further teaches wherein the attraction point is a spanning tree root bridge of said layer 2 network and wherein code that causes forwarding said multicast traffic comprises code that causes forwarding said multicast traffic towards the root bridge via a port selected according to said spanning tree (**Fig. 6 is a detailed illustration of a multicast switch including a connection table according to various embodiments of the invention).**

**Regarding claim 39,** Haggerty and Regan together taught the method as in claim 2 above. Haggerty further teaches wherein said code that causes forwarding of said join message comprises code that causes flooding of said join message via said spanning tree of said layer 2 network (e.g., **Announce--sends to all switches, either on the 802.1d spanning tree or by flood – col. 17, line 59-60).**

***Response to Amendment***

Applicant's arguments with respect to claim(s) 2, 5-6, 8, 12-14, 16, 19-20, 22, 26-28, 30-39 have been considered but are moot in view of the new ground(s) of rejection.

**Applicant Argument:**

Conventional systems such as Haggerty et al. require the presence of layer 3 routers in the network and that join messages (e.g., IGMP joins) are forwarded only towards the routers in the network. The claimed invention uses an attraction point that is a layer 2 switch, thus allowing the system to operate without the presence of any layer 3 routers.

**Examiner Response:**

With respect Applicant argument, Haggerty discloses a system in Fig. 11, wherein a flowchart of the multicasting protocol method of the present invention showing multicast switch processing steps undertaken upon reception of a Switch Join Group message. In addition, Haggerty explicitly teaches in FIG. 11 an alternative embodiment, in steps 241 and 242 which may be omitted for a case in which multicast switches in a switch network have no attached routers "here is same as the packets are forwarding within layer 2 or without use of any router". Therefore, Examiner maintains the rejection.

**Applicant Argument:**

Claims 5 and 19 are further submitted as patentable over the cited references which do not show or suggest flooding a join message via a spanning tree. In rejecting

the claims, the Examiner refers to col. 15, lines 20-22 of Haggerty et al. There is no flooding of join messages or flooding via a spanning tree.

**Examiner Response:**

With respect Applicant argument, Haggerty discloses a term "dense-mode" multicast routing protocols rely on periodic flooding of the network to set up and maintain the spanning tree (col. 6, lines 37-39). In addition, Haggerty discloses in col. 17, lines 45-65, e.g., if reliable delivery receives a message it did not originate, it sends an acknowledgment and delivers the message payload to the given application layer. If it receives a message it did originate, i.e. a "known" message, it does not pass the message up to the application layer but treats it as an acknowledgment instead. Any further copies of the known message are disregarded. Therefore, loops are immediately damped and reliable delivery can be used to flood signal messages to all switches.

Reliable delivery provides three interfaces to the application layer to send messages:

- (1) Deliver--sends a message one hop to neighbor switches,
- (2) Announce--sends to all switches, either on the 802.1d spanning tree or by flood,
- (3) Direct--sends along a path to a target switch and only passes the message up to the application layer in the target switch. Since the above examples are directed the same as flooding via a spanning tree or flooding of join messages. Therefore, Examiner maintains the rejection.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sulaiman Nooristany whose telephone number is 571-270-1929. The examiner can normally be reached on Monday Through Friday 7:30 am to 5:00 pm EST. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffery Pwu can be reached on 571-272-6798. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SN        4/6/2010

/Jeffrey Pwu/

**Supervisory Patent Examiner, Art Unit 2446**